



DUPLEX

FOULING RELEASE



Technology that Makes
ECONOMIC and
ENVIRONMENTAL
Sense



MARINE



POWER
GENERATION



WATER/WASTE
TREATMENT

FUJIFILM



Our nontoxic solution is a patented, resilient, effective silicone-based coating. The Smart Surfaces Duplex fouling release technology causes organisms to be released from surfaces even at slower speeds and lighter water pressure – a solution that works with Nature, not against it.

A solution the world can live with

The Smart Surfaces Duplex Fouling Release Coating System provides a remarkably effective, nontoxic alternative to conventional antifouling technologies. And the need has never been more urgent for the environment, as well as for operational efficiency.



This U.S. Navy patented solution unites durability, longevity, clean-ability, repair-ability and cost-effectiveness in a single product.

Finally, superior biofouling protection is compatible with superior environmental protection.

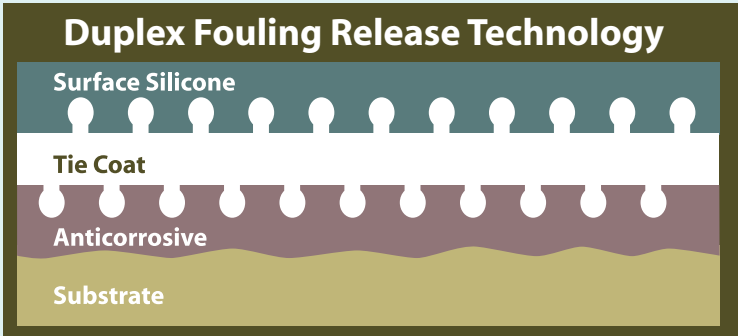
Super tough silicone surface

Not all fouling release technologies are created equal. Conventional systems can be vulnerable to wear and tear from debris in the water or from contact with other structures. Our Duplex System, however, has proven in comparative testing to be significantly more durable than other fouling release coatings.

The Duplex System's extra "hard" surface provides steady long-term performance long after "softer" systems' performance has degraded.

Our technology

The Duplex tie formula incorporating nano technology is a unique synergy of three layers. An epoxy anti-corrosion layer and a tough, protective silicone topcoat are effectively interlocked by a unique thermoplastic elastomeric tie formula.



The synergy among the three creates superior adhesion and durability. This technology boosts the toughness and adhesion properties of the epoxy and silicone coatings, creating a new system far more durable than anything currently in use.

	Test Item	Test Method(s) or Variation of Test Method(s) Employed	% Duplex Tested Better Performing Than Competitive Products
Mechanical Strength of the System	Scratch Resistance	ASTM-G171-03	1%
	Abrasion Resistance	ASTM-D4060-07 and ASTM-D2197-98 R04	25%
Adhesion	Adhesion (Tie Coat to Epoxy)	ASTM-D1002-05	100%
	Adhesion (Surface Coat to Tie Coat)		6%
Foul Release	Barnacle Adhesion Strength in Shear	ASTM-D5618-94	43%
Mechanical Strength of Surface Coat Itself	Modulus	ASTM-D638	28%
	Stress @ Break		96%
	Elongation		56%
	Energy to Break (Toughness)		72%



Designed for Marine Use

Commercial Ships, Work Boats, Pleasure Craft, Offshore Platforms

Fouling of marine surfaces by barnacles, mussels and other organisms is an expensive and challenging problem for all sea faring vessels. Biofoulants reduce speed, increase fuel consumption, and increase maintenance expense. Just as challenging is finding a fouling release coating that doesn't harm the environment, marine life or human health.

Coatings containing biocides, such as Tributyltin (recently banned) and copper metals have been in widespread use. Smart Surfaces Duplex Fouling Release System technology provides an effective, non-toxic alternative that can help save the sea and your budget too.

Our Duplex System offers:

- 6 to 10% Reduction in Fuel Consumption
- Superior Release Range of 8 to 43 Knots
- Proven More Durable Than Other Coatings
- Unique Technology Enabling Use on High-Speed Vessels
- Decreased Maintenance Costs & Downtime
- Total Compliance with Environmental Regulations
- No Heavy Metals or Biocides
- ABS Certificate of Design Assessment
#09-HS454207-PDA
2009 Steel Vessel Rules I-I-4/7.7, I-I-A3

Finally, superior biofouling technology that makes economic and environmental sense.

Photo: Frank Frisk @ www.FreighterFrank.com

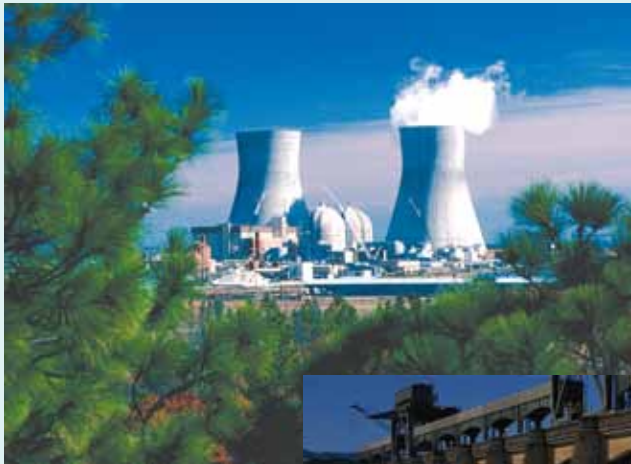


Fouling release technology that makes economic and environmental sense



Designed for Power Plant Water Systems

Intake Tunnels, Trash Racks, Traveling Screens,
Water Feed Pipes, Penstocks



Advanced Solution for the Power Industry

Smart Surfaces Duplex Fouling Release Coating System is a U.S. Navy patented, extremely durable, silicone-based coating. Smart Surfaces Duplex fouling release technology causes marine organisms – such as zebra mussels, quagga mussels and other infestations – to be released from surfaces at very slow flow rates (as low as 0.5 feet per second in fresh water) and with light water pressure.

Our technology

Smart Surfaces Duplex Fouling Release Coating System eliminates the hazard and expense of chlorination treatments. Our non-toxic solution works with Nature, not against it.

The super tough, silicone-based coating is anti-corrosive and extremely hydrophobic. So it not only saves on maintenance costs Smart Surfaces Duplex technology reduces friction loss and increases condenser flow rate.

Duplex Fouling Release Coating System

- Eliminates Harsh Chlorination Treatments
- Easy Application
- Extremely Durable Anti-Corrosive Coating
- Reduces Friction Loss
- Increases Water Flow Rate Performance
- Eliminates Significant Operating & Maintenance Expenses
- Non Toxic, Environmentally-Friendly



For more information call: Smart Surfaces, LLC at 877.770.7446 or email: smartsurfaces@fujifilm.com



Designed for Water and Wastewater Treatment Facilities

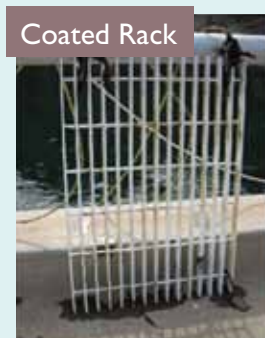
Intake Structures & Piping, Trash Racks, Transmission & Delivery Piping, Weirs and Launder Walls



It is well known that fouling by mussels, barnacles, plants, slime and other organisms attached to immersed surfaces of water and wastewater treatment structures is a challenging problem

The Duplex System provides for:

- Aiding in the reduction of unwanted solids
- Flow efficiency enhancement
- Extremely easy cleaning
- Potable water contact
- UL certified to ANSI/NSF 61 standards



Coated Rack



Uncoated Rack



Smart reasons to choose Smart Surfaces

- **Non-toxic, environmentally friendly** — no heavy metals or biocides
- **Environmentally safe** — VOC Compliant, and waste can be disposed of in sanitary landfills; no EPA reporting under FIFRA
- **Easy to apply** — trained staff can apply it with airless spray equipment
- **Maintenance savings** — labor intensive scraping is eliminated, and cleaning processes are streamlined
- **Superior release** — removal by water jet with normal pressure or by self-cleaning with constant water flow
- **Efficient release** — at speeds as low as 8 knots
- **Fuel savings** — as much as 6 to 10% savings in cost have been recorded with silicone coatings



Fouling release technology that makes economic and environmental sense

FUJIFILM



FUJIFILM Hunt Smart Surfaces, LLC Global resources at the service of innovative technology

As part of FUJIFILM, with its global reach, manufacturing power, logistical know-how, proven commitment to advanced technology solutions and customer-focused business culture, Smart Surfaces is uniquely positioned to serve your needs. All customers, from the independent marina to the largest international shipping or industrial concern, benefit from our worldwide yet locally focused team approach.

Our U.S. manufacturing facilities are ISO 9001 and 14001 certified, ensuring that our customers benefit from the most advanced processes and products. Our quality control technology, production operations and analytical teams are integrated into one seamless system that exceeds industry standards and help our customers capitalize on opportunities.



Products, Research & Development

FUJIFILM Corporation manufactures over 500 different high-performance products. Our Worldwide Research & Development Group, located in Allendale, New Jersey, provides full capabilities in all aspects of industrial materials evaluation and engineering.

Changing our world with Smart Surfaces

From pleasure craft to supertankers, and from waterside power plants to offshore oil rigs, all marine vessels and structures contend with fouling problems as organisms attach themselves to surfaces.

Until recently, the universal approach to this problem relied on anti-fouling coatings applied to surfaces in order to kill the marine growth that tried to attach itself. Unfortunately, all such coatings are toxic and internationally signed legislation established that use of anti-fouling coatings containing tributyltin be prohibited effective January 1, 2008.



But Smart Surfaces, LLC has a solution. We call it the Duplex System.



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